

The Diffraction Phenomenon on Conic Manifolds

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By Hormander's celebrated theorem on propagation of singularities, the waves on 'good' manifolds travel along the geodesics. When the waves strike 'sharp places' (e.g. a corner, an edge, a cone tip etc.), diffraction phenomena might occur. Mathematically, the diffraction refers to the splitting of singularities. From a microlocal viewpoint, it can be elucidated by the microlocal structure of the semiclassical resolvent in terms of pseudodifferential and Fourier integral operators.

References:

[1] X. Chen, The semiclassical resolvent on conic manifolds and application to Schrödinger equations, *Comm. Math. Phys.* 390(2022), 757-826.